

Appl. No. 10/731,171

Attorney Docket: P17844

**LISTING OF THE CLAIMS:**

This listing of claims replaces all prior versions, and listings, of claims in the application:

1 1: (Cancelled).

1 2: (Cancelled).

1 3: (Cancelled).

1 4: (Previously Presented) A method comprising:

2 associating a virtual machine with a processor utilizing a virtual machine identifier;

3 receiving an interrupt;

4 determining if the interrupt is associated with a virtual machine identifier that is

5 associated with one or more processors; and

6 if so, routing the interrupt to the matching processor(s); and

7 wherein if the interrupt is associated with a virtual machine identifier that is currently not

8 associated with one or more processors,

9 targeting a virtual machine not currently running on any processor; and

10 routing the interrupt to a processor running in shared mode and reported as executing the

11 lowest priority task.

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1 5: (Original) The method of claim 4, wherein associating a virtual machine with a processor  
2 utilizing a virtual machine identifier includes:  
3 receiving a communication from the processor that includes a virtual machine identifier;  
4 and  
5 storing a processor identifier and the virtual machine identifier in a participant table.

1 6: (Original) The method of claim 5, wherein receiving a communication from the processor  
2 includes utilizing, at least in part, the VM-ID information to optimize system resources and  
3 parameters.

1 7: (Original) The method of claim 5, wherein receiving a communication from the processor that  
2 includes a virtual machine identifier occurs when the processor either initiates or resumes  
3 execution of a virtual machine indicated by the virtual machine identifier.

1 8: (Original) The method of claim 7, wherein a virtual control block (VCB)  
2 specifies a virtual machine identifier for each virtual machine, and  
3 stores the virtual machine identifier in an executing processor utilizing a virtual machine  
4 control block.

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1 9: (Original) The method of claim 5, wherein associating a virtual machine with a processor  
2 utilizing a virtual machine identifier includes:

3 receiving a communication from the processor that includes information that denotes  
4 whether or not the processor is running in shared or dedicated mode; and  
5 storing the processor mode information in a participant table.

1 10: (Cancelled).

1 11: (Previously Presented) A method comprising:

2 associating a virtual machine with a processor utilizing a virtual machine identifier;  
3 receiving an interrupt;  
4 determining if the interrupt is associated with a virtual machine identifier that is  
5 associated with one or more processors;  
6 if so, routing the interrupt to the matching processor(s); and  
7 associating an interrupt generating device that is exclusively assigned to a virtual  
8 machine with the virtual machine's identifier.

1 12: (Original) The method of claim 11, wherein associating an interrupt generating device  
2 includes storing the virtual machine identifier in a memory element within the device so that any  
3 interrupts generated by the device may include the virtual machine identifier.

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1 13: (Original) The method of claim 11, wherein associating an interrupt generating device  
2 includes:  
3 utilizing an interrupt controller, having interrupt input lines, to route all interrupts from  
4 the interrupt generating device, and  
5 associating a virtual machine identifier with an input line of the interrupt controller; and  
6 wherein the interrupt controller assumes that all interrupts incoming on the associated interrupt  
7 input line are associated with the virtual machine identifier.

1 14: (Cancelled).

1 15: (Cancelled).

1 16: (Cancelled).

1 17: (Currently Amended) An article comprising:  
2 a machine accessible storage medium having a plurality of machine accessible instructions,  
3 wherein when the instructions are executed, the instructions provide for:  
4 associating a virtual machine with a processor utilizing a virtual machine identifier;  
5 receiving an interrupt;

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6 determining if the interrupt is associated with a virtual machine identifier that is  
7 associated with one or more processors; and  
8 if so, routing the interrupt to the matching processor(s); and  
9 wherein, if the interrupt is not associated with a virtual machine identifier that is currently  
10 associated with one or more processors,  
11 targeting a virtual machine not currently running on any processor; and  
12 routing the interrupt to a processor running in shared mode and reported as executing the  
13 lowest priority task.

1 18: (Original) The article of claim 17, wherein the instructions providing for associating a virtual  
2 machine with a processor utilizing a virtual machine identifier includes instructions providing  
3 for:  
4 receiving a communication from the processor that includes a virtual machine identifier;  
5 and  
6 storing a processor identifier and the virtual machine identifier in a participant table.

1 19: (Original) The article of claim 18, wherein the instructions providing for receiving a  
2 communication from the processor includes instructions providing for utilizing, at least in part,  
3 the VM-ID information to optimize system resources and parameters.

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1 20: (Original) The article of claim 18, wherein the instructions providing for receiving a  
2 communication from the processor that includes a virtual machine identifier occurs when the  
3 processor either initiates or resumes execution of a virtual machine indicated by the virtual  
4 machine identifier.

1 21: (Original) The article of claim 20, further including instructions providing for a virtual  
2 control block (VCB)  
3 specifying a virtual machine identifier for each virtual machine, and  
4 storing the virtual machine identifier in an executing processor utilizing a virtual machine  
5 control block.

1 22: (Original) The article of claim 18, wherein the instructions providing for associating a virtual  
2 machine with a processor utilizing a virtual machine identifier includes instructions providing  
3 for:  
4 receiving a communication from the processor that includes information that denotes  
5 whether or not the processor is running in shared or dedicated mode; and  
6 storing the processor mode information in a participant table.

1 23: (Cancelled).

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1 24: (Currently Amended) An article comprising:  
2 a machine accessible storage medium having a plurality of machine accessible instructions,  
3 wherein when the instructions are executed, the instructions provide for:  
4 associating a virtual machine with a processor utilizing a virtual machine identifier;  
5 receiving an interrupt;  
6 determining if the interrupt is associated with a virtual machine identifier that is  
7 associated with one or more processors;  
8 if so, routing the interrupt to the matching processor(s); and  
9 associating an interrupt generating device that is exclusively assigned to a virtual  
10 machine with the virtual machine's identifier.

1 25: (Original) The article of claim 24, wherein the instructions providing for associating an  
2 interrupt generating device includes instructions providing for storing the virtual machine  
3 identifier in a memory element within the device so that any interrupts generated by the device  
4 may include the virtual machine identifier.

1 26: (Original) The article of claim 14, wherein the instructions providing for associating an  
2 interrupt generating device includes instructions providing for:  
3 utilizing an interrupt controller, having interrupt input lines, to route all interrupts from  
4 the interrupt generating device, and  
5 associating a virtual machine identifier with an input line of the interrupt controller; and

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6 wherein the interrupt controller assumes that all interrupts incoming on the associated interrupt  
7 input line are associated with the virtual machine identifier.

1 27: (Cancelled).

1 28: (Cancelled).

1 29: (Cancelled).

1 30: (Previously Presented) An apparatus comprising:  
2 a plurality of processors:  
3 to execute a plurality of virtual machines having virtual machine identifiers, and  
4 wherein each processor is capable of communicating, to an integrated circuit, the  
5 virtual machine identifier of the virtual machine that the processor is currently executing; and  
6 the integrated circuit to steer interrupts to the processor utilizing, at least in part, the  
7 virtual machine interrupts; and  
8 wherein the integrated circuit is capable of:  
9 associating each processor with a virtual machine identifier, and the associations are  
10 stored in a participant table, and  
11 determining whether each processor is running in shared or dedicated mode.



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1 31: (Cancelled).

1 32: (Previously Presented) An apparatus comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual machine  
3 identifiers; and

4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the  
5 virtual machine interrupts; and

6 wherein the integrated circuit is capable of:

7 utilizing, at least in part, the VM-ID information to optimize system resources and  
8 parameters;

9 receiving an interrupt;

10 determining if the interrupt is associated with a virtual machine identifier that is  
11 associated with one or more processors; and

12 if so, routing the interrupt to the matching processor(s).

1 33: (Cancelled).

1 34: (Previously Presented) An apparatus comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual machine

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3 identifiers;

4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the  
5 virtual machine interrupts;

6 a virtual control block (VCB) that is capable of:

7 specifying a virtual machine identifier for each virtual machine, and

8 storing the virtual machine identifier in an executing processor utilizing a virtual  
9 machine control block; and

10 wherein the integrated circuit is further capable of:

11 if the interrupt is not associated with a virtual machine identifier,

12 utilizing a virtual control block to steer the interrupt to the appropriate processor.

1 35: (Currently Amended) An apparatus comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual machine  
3 identifiers;

4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the  
5 virtual machine interrupts; and

6 wherein the integrated circuit is capable of:

7 if the interrupt is not associated with a virtual machine identifier,

8 utilizing a virtual control block to steer the interrupt to the appropriate processor; and

9 if the interrupt is associated with a virtual machine identifier that is not currently associated with  
10 one or more processors,

11 targeting a virtual machine not currently running on any processor; and

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12 routing the interrupt to a processor running in shared mode and reported as executing the  
13 lowest priority task.

1 36: (Cancelled).

1 37: (Cancelled).

1 38: (Previously Presented) An apparatus comprising:  
2 a plurality of processors to execute a plurality of virtual machines having virtual machine  
3 identifiers;  
4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the  
5 virtual machine interrupts; and  
6 wherein each processor is capable of:  
7 communicating, to the integrated circuit, the virtual machine identifier of the virtual  
8 machine that the processor is currently executing when the processor either initiates or resumes  
9 execution of the virtual machine.

1 39: (Previously Presented) An apparatus comprising:  
2 a plurality of processors to execute a plurality of virtual machines having virtual machine  
3 identifiers;

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4 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the  
5 virtual machine interrupts; and  
6 wherein each processor is capable of:  
7 communicating, to the integrated circuit, the virtual machine identifier of the virtual  
8 machine that the processor is currently executing; and  
9 wherein the integrated circuit is capable of associating an interrupt generating device by:  
10 utilizing an interrupt controller, having interrupt input lines, to route all interrupts from  
11 the interrupt generating device, and  
12 associating a virtual machine identifier with an input line of the interrupt controller; and  
13 wherein the interrupt controller assumes that all interrupts incoming on the associated interrupt  
14 input line are associated with the virtual machine identifier.

1 40: (Cancelled).

1 41: (Cancelled).

1 42: (Cancelled).

1 43: (Cancelled).

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1 44: (Cancelled).

1 45: (Previously Presented) A system comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual machine  
3 identifiers;

4 at least one interrupt generating device to transmit an interrupt having a virtual machine  
5 identifier; and

6 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the  
7 virtual machine interrupts; and

8 wherein the integrated circuit is capable of:

9 utilizing, at least in part, the VM-ID information to optimize system resources and  
10 parameters;

11 receiving an interrupt;

12 determining if the interrupt is associated with a virtual machine identifier that is

13 associated with one or more processors; and

14 if so, routing the interrupt to the matching processor(s).

1 46: (Cancelled).

1 47: (Previously Presented) A system comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual machine

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3 identifiers;

4 at least one interrupt generating device to transmit an interrupt having a virtual machine  
5 identifier;

6 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the  
7 virtual machine interrupts; and

8 a virtual control block (VCB) that is capable of:

9 specifying a virtual machine identifier for each virtual machine, and

10 storing the virtual machine identifier in an executing processor utilizing a virtual machine  
11 control block; and

12 wherein the integrated circuit is capable of:

13 receiving an interrupt;

14 determining if the interrupt is associated with a virtual machine identifier that is

15 associated with one or more processors;

16 if so, routing the interrupt to the matching processor(s); and

17 if the interrupt is not associated with a virtual machine identifier, utilizing a virtual

18 control block to steer the interrupt to the appropriate processor.

1 48: (Previously Presented) A system comprising:

2 a plurality of processors to execute a plurality of virtual machines having virtual machine  
3 identifiers;

4 at least one interrupt generating device to transmit an interrupt having a virtual machine  
5 identifier;

6 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the

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7 virtual machine interrupts; and  
8 wherein the integrated circuit is capable of:  
9 if the interrupt is not associated with a virtual machine identifier,  
10 utilizing a virtual control block to steer the interrupt to the appropriate processor;  
11 if the interrupt is associated with a virtual machine identifier that is not currently associated with  
12 one or more processors,  
13 targeting a virtual machine not currently running on any processor; and  
14 routing the interrupt to a processor running in shared mode reported as executing the  
15 lowest priority task.

1 49: (Cancelled).

1 50: (Cancelled).

1 51: (Cancelled).

1 52: (Previously Presented) A system comprising:  
2 a plurality of processors to execute a plurality of virtual machines having virtual machine  
3 identifiers;  
4 at least one interrupt generating device to transmit an interrupt having a virtual machine

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5 identifier; and

6 an integrated circuit to steer interrupts to the processor utilizing, at least in part, the

7 virtual machine interrupts;

8 wherein each processor is capable of:

9 communicating, to the integrated circuit, the virtual machine identifier of the virtual

10 machine that the processor is currently executing; and

11 wherein the integrated circuit is capable of associating an interrupt generating device by:

12 utilizing an interrupt controller, having interrupt input lines, to route all interrupts from

13 the interrupt generating device, and

14 associating a virtual machine identifier with an input line of the interrupt controller; and

15 wherein the interrupt controller assumes that all interrupts incoming on the associated interrupt

16 input line are associated with the virtual machine identifier.